

Proposed claims for  
Interview 1/10/06

LISTING OF CLAIMS:

Please replace all prior listings of claims as follows:

1. (Currently Amended) A liquid pipetting apparatus for dispensing a minute amount of liquid comprising:

at least one a conduit member for holding the liquid therein and having a dispensing end ~~and for dispensing the held liquid from one end thereof~~; and

an actuator ~~which moves~~ associated with the at least one conduit member in a direction opposite to a dispensing direction of the liquid,

*a voltage applicator is claimed for moving said actuator*  
wherein the liquid held in the at least one conduit member is dispensed *Said voltage applicator mechanism is operable to dispense liquid from the dispensing end of said at least one conduit member when the actuator moves the at least one conduit member in a dispensing direction by applying voltage to the actuator, a decrease in voltage is applied to*  
from ~~one~~ the dispensing end thereof when the actuator moves the at least one conduit member is temporarily stopped and then moved by the actuator in the a direction opposite to the a dispensing direction of the liquid.

2-27. (Cancelled)

28. (Previously Presented) A liquid pipetting apparatus as claimed in claim 1, wherein the dispensing direction of the liquid is a vertical and downward direction.

29. (Cancelled)

30. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid after the at least one conduit member has ceased movement in the dispensing direction of the liquid.

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31. (Previously Presented) A liquid pipetting apparatus as claimed in claim 30, wherein the dispensing direction of the liquid is a vertical and downward direction.

32. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid, after being moved in the dispensing direction of the liquid.

33. (Previously Presented) A liquid pipetting apparatus as claimed in claim 32, wherein the dispensing direction of the liquid is a vertical and downward direction.

34. (Currently Amended) A liquid pipetting apparatus as claimed in claim 32, wherein an acceleration of the at least one conduit member is different in magnitude at the times that the at least one conduit member moves in the dispensing direction of the liquid ~~the conduit member~~ versus when the at least one conduit member moves in the direction opposite to the dispensing direction of the liquid.

35. (Currently Amended) A liquid pipetting apparatus as claimed in claim 34, wherein a larger acceleration is caused in the at least one conduit member at the time the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid than at the time the at least one conduit member is moved in the dispensing direction of the liquid.

36. (Currently Amended) A liquid pipetting apparatus as claimed in claim

34, wherein a larger acceleration is caused in the at least one conduit member at the time of dispensing the liquid than at the time of not dispensing the liquid.

37. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein after being moved in the direction opposite to the dispensing direction of the liquid, the at least one conduit member dispenses the liquid held within the at least one conduit member from one end thereof.

38. (Currently Amended) A liquid pipetting apparatus as claimed in claim 37, wherein after being moved in the direction opposite to the dispensing direction of the liquid, the at least one conduit member moves to a specific position in order to dispense the liquid held within the at least one conduit member from one end thereof.

39. (Currently Amended) A liquid pipetting apparatus as claimed in claim 37, wherein the at least one conduit member repeats the movement to the dispensing direction of the liquid and the movement in the direction opposite to the dispensing direction of the liquid.

40. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the liquid is held in the at least one conduit member before the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid.

41. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, further comprising a washing means capable of washing the at least one conduit member.

42. (Cancelled)

43. (Cancelled)

44. (Currently Amended) A liquid pipetting apparatus as claimed in claim 41, wherein the washing means contains a pump for sending to the at least one conduit member a cleaning solution capable of washing the at least one conduit member.

45. (Currently Amended) A liquid pipetting apparatus as claimed in claim 44, farther comprising means for holding the cleaning solution in the inside of the at least one conduit member after stopping the liquid sending of the cleaning solution by the pump, and means for dispensing the cleaning solution held in the inside of the at least one conduit member from one end thereof.

46. (Currently Amended) A liquid pipetting apparatus as claimed in claim 45, further comprising means for forming an air space in the inside of the at least one conduit member after the sending of the cleaning solution to the at least one conduit member by the pump is stopped.

47. (Currently Amended) A liquid pipetting apparatus as claimed in claim 46, further comprising means for sucking the liquid in the inside of the at least one conduit member, from one end thereof, so as to make the state that the cleaning solution and the liquid held in the inside of the at least one conduit member are separated through the air space.

48. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, ~~wherein the liquid is touched to~~ further comprising an air space touching the liquid at a

side opposite to the dispensing direction in the inside of the at least one conduit member.

49. (Currently Amended) A liquid pipetting apparatus as claimed in claim 48, further comprising in the inside of the at least one conduit member a pump for drawing in the air that touches the liquid.

50. (Cancelled)

51. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the conduit member holds the liquid in the inside thereof and contains a dispensing vent to dispense the liquid held in the at least one conduit member at its one end.

52. (Previously Presented) A liquid pipetting apparatus as claimed in claim 51, wherein an inner portion of the liquid holding member has a taper shape, of which the cross-sectional area becomes smaller as the inner portion approaches the dispensing vent.

53. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, ~~wherein the conduit member supplies~~ further comprising capillary action means for supplying the liquid into the inner portion of the at least one conduit member thereof from a liquid container ~~under the capillary action.~~

54. (Previously Presented) A liquid pipetting apparatus as claimed in claim 1, wherein the actuator includes a piezoelectric element.

55. (Currently Amended) A liquid pipetting apparatus as claimed in claim

1, further comprising inertial force acting wherein the actuator dispenses by making the inertial force act on the liquid held in the at least one conduit member.

56. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the at least one conduit member is connected to the actuator detachably.

57. (Currently Amended) A liquid pipetting apparatus as claimed in claim 1, wherein the at least one conduit member comprises a plurality of conduit members.

58. (Cancelled)

59. (Cancelled)

60. (Cancelled)

61. (Currently Amended) A liquid dispensing method for dispensing a minute amount of liquid from one end of a at least one conduit member for holding the liquid, comprising:

a step of holding the liquid in the at least one conduit member; and

a step of dispensing the liquid held in the at least one conduit member from one end thereof, when the conduit member is moved by a piezo-electric actuator in a direction opposite to a dispensing direction of the liquid.

62. (Cancelled)

63. (Currently Amended) A liquid dispensing method as claimed in claim 61, wherein the at least one conduit member is moved in the direction opposite to the

dispensing direction of the liquid, after the stop of movement.

64. (Currently Amended) A liquid dispensing method as claimed in claim 61, wherein after being moved in the dispensing direction of the liquid, the at least one conduit member is moved in the opposite direction to the dispensing direction of the liquid.

65. (Currently Amended) A liquid dispensing method as claimed in claim 61, wherein at the time that the at least one conduit member moves in the dispensing direction of the liquid and at the time that the at least one conduit member moves in the direction opposite to the dispensing direction of the liquid the acceleration of the at least one conduit member is different in magnitude.

66. (Currently Amended) A liquid dispensing method as claimed in claim 65, wherein an acceleration in the at least one conduit member at the time the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid is larger than an acceleration at time the at least one conduit member is moved in the dispensing direction of the liquid.

67. (New) The method of claim 61, further comprising washing the at least one conduit member after the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid.

68. (New) The method of claim 61, further comprising washing the at least one conduit member after the at least one conduit member is moved in the direction opposite to the dispensing direction of the liquid.

69. (New) A liquid pipetting apparatus for dispensing a minute amount of liquid comprising:

at least one a conduit member for holding the liquid therein and having a dispensing end; and

an actuator associated with the at least one conduit member, and

means for generating a control signal that drives the actuator to a temporary stop and to a direction opposite a dispensing direction of the liquid from the at least one conduit,

wherein the liquid held in the at least one conduit member is dispensed from the dispensing end thereof when the at least one conduit member is temporarily stopped and then moved by the actuator in the direction opposite to the dispensing direction of the liquid.